

Editorial

Advances in Research on Beverages, Food, Yeast and Brewing

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This closing Editorial marks the end of three volumes of this Special Issue (SI), which covered themes like changes in reactants and products, chemistry, sensory properties, microbiology, transcriptomics, proteomics and metabolomics, food safety, and nutrition. Studies on food processing technology, new product development, food structure and functionality, volatiles and flavours, and physical changes were also included. The aforementioned themes demonstrate the diversity of the published manuscripts. This SI included nine contributions in the first volume, and eight each in the second and third volumes, amounting to 25 articles. Twenty-four of these were research articles, while one was a review. In the first edition, the articles focused on fermented cassava granules [1], chromosomal aneuploids [2], yeasts from fruits [3], indigenous low-temperature-tolerant yeasts [4], and the development of a beer-like beverage [5]. Other investigations included the optimisation of isomaltose by the lager yeast *Saccharomyces pastorianus* [6], the assessment of aromatic and highly bitter hop varieties in beer production [7], the assessment of n-propanol production in the fermentation of Chinese Baijiu [8], and the utilisation of coffee pulp and mucilage to produce a beverage with alcohol content [9].

The second volume featured work on the effects of gene deletions in *Saccharomyces cerevisiae* [10], milk preservation using a species of marine bacteria [11], the use of phthalates in beer [12], the supplementation of beer with *Chlorella vulgaris* [13], the production of volatile aroma compounds by *Yarrowia lipolytica* in brewers' wort [14], the promotion of the growth of fruiting bodies through proteomics regulation [15], and the development of a fermented bitter melon (*Momordica charantia*)–grape beverage [16], and a review on brewing with fruit juices using peaches [17].

The final and most recent volume presented incremental knowledge on the fermentation of food and beverages. Perhaps the most fascinating article found in the third volume is that of Liu et al. [18]. This article brought insights into what existed 2300 years ago and emphasised the importance of historical microbiological investigations in association with other disciplines. This work provided useful insights that filled a gap in our knowledge of how yeasts evolved centuries ago. There were other interesting pieces of work in the third edition. These included research on freezing stress tolerance in *Saccharomyces cerevisiae* [19], the use of enzyme-treated beers for celiac patients [20], autochthonous ingredients involved in craft beer production [21], and the role beer must composition plays in a yeast strain that is genetically modified [22]. Other investigations reported included the transcriptional evaluation of a mixed culture for natural fruity sour beer [23], a multi-omics analysis of Chinese Baijiu liquor fermentation [24], and a study of the differences in the volatile profile of apple cider fermented with two species of *Schizosaccharomyces* [25].

Recent developments [26–31] in fermentation research have shown that considerable opportunity exists for applying these new methods and technology to the investigation of existing food, beverages, and brewing systems worldwide. From this SI, it is evident that there exist future research opportunities on the spread of traditional food and drink to different geographical regions across the globe. Many new products and processes can be developed from artisanal fermented beverages consumed in many countries. An example is the possible application of the methods shown in this SI to the globally consumed fermented traditional beverage palm wine [32], which possesses considerable oenological



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potential [33]. Other local traditional foods and beverages reported in the first volume of this SI, like Garri [1], Baijiu [8], and fermented bitter gourd beverage [16] discussed in the second volume, have the possibility of sustained improvement with the new fermentation processes and technology available today. The craft fruity sour beer [23] reported in the third edition also has the potential to be used in the development of new products. The development and increased use of new technology for processing both traditional and well-known fermented food and beverages will benefit the world's food security and help achieve sustainability goals [34] two and three (zero hunger, and good health and well-being) of the United Nations.

Conflicts of Interest: The author declares no conflict of interest.

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